What is Claimed is:

1.   A pattern collation apparatus for collating a
2   registration pattern with a collation pattern,
3   comprising:
4   first collation means for executing collation
5   between the registration pattern and the collation
6   pattern on the basis of a correlation value between the
7   patterns;
8   second collation means for executing collation
9   between the registration pattern and the collation
10   pattern on the basis of a feature parameter defined in
11   advance; and
12   collation determination means for determining
13   that the registration pattern coincides with the
14   collation pattern by using at least one of a collation
15   result by said first collation means and a collation
16   result by said second collation means.

2.   An apparatus according to claim 1, wherein
2   when at least one of the collation result by said first
3   collation means and the collation result by said second
4   collation means indicates coincidence between the
5   registration pattern and the collation pattern, said
6   collation determination means determines that the
7   registration pattern coincides with the collation
8   pattern.

3.   An apparatus according to claim 1, wherein

2   when the collation result by said first collation means

3   indicates coincidence between the registration pattern

4   and the collation pattern, said collation determination

5   means determines that the registration pattern coincides

6   with the collation pattern without executing collation

7   by said second collation means.

4.   An apparatus according to claim 1, wherein

2   when the collation result by said second collation means

3   indicates coincidence between the registration pattern

4   and the collation pattern, said collation determination

5   means determines that the registration pattern coincides

6   with the collation pattern without executing collation

7   by said first collation means.

5.   An apparatus according to claim 1, wherein

2   said apparatus further comprises execution order

3   designation means for allowing designation of an

4   execution order of collation by said first collation

5   means and collation by said second collation means, and

6   when a collation result by collation means

7   which is designated by said execution order designation

8   means to be executed first indicates coincidence between

9   the registration pattern and the collation pattern, said

10   collation determination means determines that the

11 registration pattern coincides with the collation

12 pattern without executing collation by collation means

13 which is designated to be executed later.

6.   An apparatus according to claim 1, wherein

2 said apparatus further comprises

3   image inspection means for inspecting an image

4 of the collation pattern, and

5   execution order designation means for

6 designating an execution order of collation by said

7 first collation means and collation by said second

8 collation means on the basis of an inspection result of

9 the image of the collation pattern by said image

10 inspection means, and

11   when a collation result by collation means

12 which is designated by said execution order designation

13 means to be executed first indicates coincidence between

14 the registration pattern and the collation pattern, said

15 collation determination means determines that the

16 registration pattern coincides with the collation

17 pattern without executing collation by collation means

18 which is designated to be executed later.

7.   A pattern collation apparatus comprising:

2   registration Fourier pattern data generation

3 means for executing N-dimensional discrete Fourier

4 transform for N-dimensional ($N \geq 1$) pattern data of a

5   registration pattern to generate registration Fourier

6   N-dimensional pattern data;

7   collation Fourier pattern data generation

8   means for executing N-dimensional discrete Fourier

9   transform for N-dimensional (N $\geq$ 1) pattern data of a

10   collation pattern to generate collation Fourier

11   N-dimensional pattern data;

12   first amplitude suppression means for

13   executing amplitude suppression processing for the

14   registration Fourier N-dimensional pattern data;

15   second amplitude suppression means for

16   executing amplitude suppression processing for the

17   collation Fourier N-dimensional pattern data;

18   first polar coordinate system transformation

19   means for obtaining a polar coordinate system from a

20   coordinate system of the registration Fourier

21   N-dimensional pattern data that has undergone the

22   amplitude suppression processing by said first amplitude

23   suppression means;

24   second polar coordinate system transformation

25   means for obtaining a polar coordinate system from a

26   coordinate system of the collation Fourier N-dimensional

27   pattern data that has undergone the amplitude

28   suppression processing by said second amplitude

29   suppression means;

30   first collation means for collating, by an

31   amplitude suppression correlation method, the

32   registration Fourier N-dimensional pattern data of the

33   polar coordinate system obtained by said first polar

34   coordinate system transformation means with the

35   collation Fourier N-dimensional pattern data of the

36   polar coordinate system obtained by said second polar

37   coordinate system transformation means;

38   rotational shift amount measurement means for

39   obtaining a rotational shift amount between the pattern

40   data from a position of a correlation peak obtained in a

41   collation process by said first collation means;

42   rotational shift correction means for

43   executing rotational shift correction for one of the

44   registration pattern and the collation pattern on the

45   basis of the rotational shift amount obtained by said

46   rotational shift amount measurement means;

47   second collation means for, after rotational

48   shift correction by said rotational shift correction

49   means, collating the registration pattern with the

50   collation pattern by the amplitude suppression

51   correlation method;

52   vertical and horizontal shift amount

53   measurement means for obtaining vertical and horizontal

54   shift amounts between the pattern data from a position

55   of a correlation peak obtained in a collation process by

56   said second collation means;

57   rotational · vertical/horizontal shift

58   correction means for executing rotational shift and

59 vertical/horizontal shift correction for one of the

60 registration pattern and the collation pattern on the

61 basis of the rotational shift amount obtained by said

62 rotational shift amount measurement means and the

63 vertical and horizontal shift amounts obtained by said

64 vertical and horizontal shift amount measurement means;

65   third collation means for, after the

66 rotational shift and the vertical and horizontal shifts

67 are corrected by said rotational · vertical/horizontal

68 shift correction means, collating the registration

69 pattern with the collation pattern on the basis of a

70 feature parameter defined in advance; and

71   collation determination means for determining

72 that the registration pattern coincides with the

73 collation pattern when at least one of collation results

74 by said first collation means, said second collation

75 means, and said third collation means indicates

76 coincidence between the registration pattern and the

77 collation pattern.

8.   An apparatus according to claim 7, wherein

2   said first polar coordinate system

3 transformation means transforms the coordinate system of

4 the registration Fourier N-dimensional pattern data that

5 has undergone the amplitude suppression processing by

6 said first amplitude suppression means into the polar

7 coordinate system, and

8   said second polar coordinate system

9   transformation means transforms the coordinate system of

10   the collation Fourier N-dimensional pattern data that

11   has undergone the amplitude suppression processing by

12   said second amplitude suppression means into the polar

13   coordinate system.

9.   An apparatus according to claim 7, wherein

2   said first polar coordinate system

3   transformation means adds a sign of a phase to the

4   registration Fourier N-dimensional pattern data that has

5   undergone the amplitude suppression processing by said

6   first amplitude suppression means, extracts only an

7   amplitude component with the sign, and then transforms

8   the coordinate system of the registration Fourier

9   N-dimensional pattern data into the polar coordinate

10   system, and

11   said second polar coordinate system

12   transformation means adds a sign of a phase to the

13   collation Fourier N-dimensional pattern data that has

14   undergone the amplitude suppression processing by said

15   second amplitude suppression means, extracts only an

16   amplitude component with the sign, and then transforms

17   the coordinate system of the collation Fourier

18   N-dimensional pattern data into the polar coordinate

19   system.

10.   An apparatus according to claim 7, wherein

2   said first amplitude suppression means removes

3   a phase component of the registration Fourier

4   N-dimensional pattern data and then executes the

5   amplitude suppression processing for the registration

6   Fourier N-dimensional pattern data, and

7   said second amplitude suppression means

8   removes a phase component of the collation Fourier

9   N-dimensional pattern data and then executes the

10   amplitude suppression processing for the collation

11   Fourier N-dimensional pattern data.